

Plants are Cool!

Students will learn about the needs of plant as well as plant parts/structures at the Carolina Bay exhibit. They will discover some unique plants that “eat” bugs.

Objectives

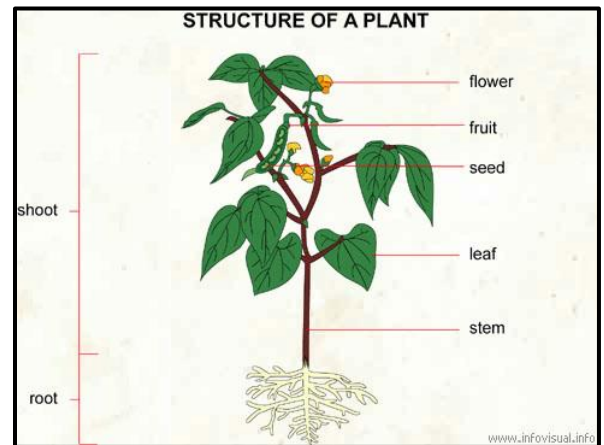
- Students will be able to identify plant structures (roots, stem, leaves, flower, fruit, seed).
- Students will be able to explain why some plants “eat” insects.
- Students will be able to explain why plants are important in a habitat.
- Students will be able to list the needs of plants (air, water, nutrients and space).

South Carolina Science Standards

1.L.5A.1, 1.L.5B.1, 1.L.5B.2, 1.L.5B.3

Materials in Bin

- Copy of ‘Plants are Cool’ activity
- Aquarium map (Carolina Bay starred)
- Magnifying glasses
- Plant model
- Plant labeling activity (parts and functions)
- Plant labeling activity answer key
- Different types of seeds
- Picture of carnivorous plants
- Pictures of cool Aquarium plants
- “National Geographic Readers: Plants” by Kathryn Williams



Background

Plants are living organisms that can photosynthesize to make their own energy. Photosynthesis is the process of a plant taking in carbon dioxide and water and creating oxygen and sugars. Photosynthesis takes place in the cells of a green plant and the energy to make this happens comes from sunlight soaking into the plant’s leaves.

Plants come in many varieties and can be divided in to the flowering plants, conifers, gymnosperms, ferns, clubmosses, hornworts, liverworts, mosses and green algae. For this activity, we will focus on the flowering plants. Flowering plants are also known as angiosperms. They make up the most diverse group of land plants including more than 290,000 known species. Flowering plants are plants that make flowers, which produce fruits that contain seeds.

The main structures of a flowering plant are the roots, stem, leaf, flower, fruit and seeds. The roots suck up water and nutrients from the ground and pull them into the stem. The stem transports water and nutrients throughout the plant as well as create stability for the plant, allowing it to grow toward the sunlight. The leaves soak up the sunlight for photosynthesis. The flower contains the stamen and carpel, which together produce fruit. Seeds are formed within the fruit. Seeds grow into new plants.

All living things need a place to live, called a habitat. Plants need air (carbon dioxide), nutrients (food), water and space to be able to survive in a habitat. Plants need the carbon dioxide from the air and water to be able to

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photosynthesize. They need nutrients to fuel their systems. They need space in order to grow. Large plants, like trees, need a lot of space to grow where as small plants, like grass, do not. Some plants can survive in a variety of conditions where as some come only survive under a perfect condition.

Cool Aquarium Plants

Eastern Hemlock – Mountain Forest Aviary

Eastern hemlocks are conifer trees that can grow up to 175 feet tall. They prefer cooler climates where there is plenty of rainfall, like the mountains of South Carolina.

Bald Cypress Tree – Coastal Plain Gallery (Blackwater Swamp)

A bald cypress tree is a large tree with a thick base and knees. The thick base helps hold the tree up because it can grow in the water of a swamp. The knees can grow 6 feet tall and it is thought they also help hold the tree up in water.

Pitcher Plant (featured in activity)

A pitcher plant is a plant that can survive in a nutrient poor habitat, like a Carolina Bay. Carnivorous plants do well in nutrient poor soil because they can get their nutrients from the insects that get stuck in their leaves.

Duckweed – Coastal Plain Gallery (Carolina Bay and Pond)

Duckweed is an aquatic plant, preferring fresh water. It floats on or near the surface of wetlands (areas on land regularly covered by water).

Palmetto Tree – Saltmarsh Aviary

Also known as a sabal palm, the palmetto tree is South Carolina's state tree and found on the state flag.

Spartina Grass – Saltmarsh Aviary

Spartina grass is a special plant that can grow in salty water. They are found in saltmarsh which contains brackish water, a mixture of fresh and salt waters. The spartina grass can "spit" salt out of its stem allowing it to survive in salt water.

Sargassum – Ocean Gallery (Sargassum Exhibit)

Sargassum is a type of seaweed that floats on the surface of the ocean. It has tiny float like structures all over to help it stay on the surface. Many small crabs, shrimp, snails and other animals hide out in sargassum for protection.

Procedures

Pick up exhibit activity bin and white board from Information Desk. Go out in the Carolina Bay exhibit in the Coastal Plain Gallery on the 2nd floor.

- 1) Review the following with your students.
 - a. What is a plant? Living things that grow from a seed.
 - b. Why are plants important? They give us food and oxygen.

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- c. Where do plants live? All living things live in a habitat. There are many habitats in the world and many different plants in the world.
 - d. What do plants need from their habitat? Plants need air, water, nutrients (food) and space to live in their habitat.
- 2) Have the students look into the Carolina Bay exhibit. They can use their magnifying glass to get an up close look. Discuss the following:
 - a. What do you see? Their answers may include plants, frogs, crickets, dirt and water.
 - b. Look at all the plants. Do they all look the same? Nope.
 - c. What structures/parts do plants have? Hopefully they will say roots, stem and leaves. Maybe they will also say flowers, fruits and seeds.
- 3) Find a plant near the window and see if they can identify the roots, stem and leaves of the plant.
- 4) Bring out the plant model and review the parts of a plant as well as talk about the function of each part.
 - a. Roots – Suck up water
 - b. Stem – Hold the plant up
 - c. Leaf – Collect sunlight
 - d. Flower – Make fruit with seeds
- 5) Bring out the plant parts diagram and working together see if the students can identify the plant parts and choose the correct function.
 - a. All the above plus:
 - b. Fruit – Make seeds
 - c. Seeds – Grows into a new plant (show them different types of seeds)
- 6) Discuss how all plants need a home, or habitat. Ask them what all plants need to survive in a habitat. Be sure they list air, food (nutrients), water and space. Do the plants in the Carolina Bay have everything they need? Actually, no. The soil is very low on nutrients.
- 7) Let them know that a Carolina Bay is a very special habitat because the soil doesn't have a lot of nutrients. That means the plants can't get the nutrients they need from the ground. Does anyone know how venus fly traps and pitcher plants get nutrients? They get them from insects! These plants are very special because when an insect gets stuck in their leaves, they can get nutrients from the insect. So cool!
- 8) Point out a pitcher plant in the exhibit as well as the model on the wall showing how the insects get stuck. Can also show them the pictures of a venus fly trap and pitcher plant, two cool carnivorous plants that live in South Carolina.
- 9) If time allows, read "National Geographic Readers: Plants" by Kathryn Williams.
- 10) As you continue through the Aquarium, point out other cool plants mentioned above.
- 11) Take activity bin back to the Information Desk when done.

*Extend this activity in your classroom by getting a venus fly trap and letting the students watch it "eat" an insect. Could also read "Hungry Plants" by Mary Batten and "Plants Bite Back!" by Richard Platt.